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RICE, ELISA M	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/816,523	HAMALAINEN, JANI	
	Examiner	Art Unit	
	ELISA M. RICE	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12/10/2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *17,18 and 22-26* is/are allowed.

6)☒ Claim(s) *1-9,11-15 and 19-21* is/are rejected.

7)☒ Claim(s) *10 and 16* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/10/2008 has been entered.

Response to Amendment

Amendments filed on November 14, 2008 have been received and entered. Claims 1-26 are currently pending.

Claim Rejections – 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. **Claims 1, 2, 3, 5, 6, 7, 8, 9, 11, 12, and 21-23** are rejected under 35 U.S.C. 103(a) as being unpatentable over Usui et. al (JP404242106A – a translation is on order and will be provided with the mailing of the next office action) in view of Mack et al. (US patent 6,377,700),Teitelbaum (US 5,872,834) and Picone et. al. (US 5,293,452).

Regarding claim 1, Usui discloses an apparatus ("To provide a face recognizing apparatus by which the recognizing rate is further improved", Abstract), comprising:

at least one camera directed toward a user's face and to obtain at least one still image of the user's face (Usui, Figure 2, numeral 112);

memory means for storing user profile information relating to authorized users of a system (Usui, Figure 1, numeral 17);

processor connected to said at least one camera, configured to process the still images obtained by said at least one camera (Figure 1, numeral 13) and to generate a 3-dimensional model of the user's face (Usui, Figure 2, numeral 15, see Figures 3, 5-7), and

processing means for comparing the generated model with the stored user profile information to determine the user (Figure 1, numeral 16).

Usui does not teach (italicized):

(1) at least one camera configured to record *at least two still images of* a *user from at least first and second angles of view in addition to the at least one additional still image*;

(2) *to generate a facial texture bit map of the user's face using the at least one additional still image of the user's face, and to compare the facial texture bit map with the stored user profile information to determine whether the user is authorized to access the system.*

(3) *a mobile hand held terminal* for recognizing a user's identity during an attempt to access the mobile terminal;

(4) processing means for comparing the generated model with the stored user profile information to determine whether the user is *authorized to access a system, said processing means comprising means for granting access to the system when the generated 3-dimensional model matches the profile information of one of the*

authorized users stored in the memory means, thereby indicating recognition and authorization of the user; and

(5) means for *updating the profile information* of the one of the authorized users with the generated model after each grant of access by said means for granting access such that the updated profile information comprises an average of the generated model and the previously stored profile information.

Mack discloses a method and apparatus for capturing stereoscopic images using image sensors ("The present invention relates generally to three-dimensional (3-D) models and, in particular, to a method and apparatus for capturing stereoscopic images to be processed into 3-D models of objects.", column 1, line 8) wherein at least one camera is directed toward the user's face and adapted to record at least two still images of the user from at least first and second angles of view (Mack, Figure 2, numeral 22 and 23) and to obtain at least one additional still image (Mack, "Block 44 illustrates simultaneously or as close to simultaneously as possible, an image is captured by one of the left imaging device 12 and right imaging device 13 to obtain the textural data. Although multiple images may be taken by the left 12 and right imaging devices 13 to obtain textural data, generally, a single image from one imaging device may be sufficient. The reason for the simultaneousness is to match as closely as possible the stereoscopic image with the structural light data to the image with textural data.",column 4, line 67 to column 5, line 10; Mack, "The 3-D imaging device system 20 further comprises a color imaging device 24 that

captures the textural data of the target object. When textural data is to be obtained, the light source 16 is prevented from emitting structured light if the light is in the visible spectrum.", column 6, lines 17-21).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize, as the image 3D image capture system of Usui, the plural camera system of Mack whereby at least two still images of the user's face are recorded from first and second angles, in order to provide a well known, robust and reliable way with which to capture three dimensional points for modeling an object ("In creating three-dimensional (3-D) models of real objects, a multitude of images of real objects are taken from different positions to exploit the differences in the objects' projection." Mack, column 2, line 40) and without specialized equipment and operating expertise ("by using a 3-D imaging device system that can capture images of objects which are subsequently used to create 3-D data would allow consumers without special expertise to generate 3-D models of real objects expeditiously and with ease" as stated by Mack in column 1, line 52).

Mack also teaches the obtained 2-dimensional one additional still image of the user's face being used to determine the user's facial texture (Mack, column 4, line 67 to column 5, line 10; Mack, column 6, lines 17-21; Mack, column 3, line 63-column 4, line 1; Mack, column 4, lines 67-column 5, line 15).

It would have been obvious to one of ordinary skill in the art to further modify the 3-dimensional face recognition apparatus taught by the 3D image capture system of Usui to include textural face data as taught by Mack, in conjunction with the generated 3-dimensional model, to determine whether the user is authorized to access the system, because textural face data provides additional information for comparison for the recognition system "such as physical surface properties of an object" and the use of additional biometric features to authenticate a user is well known in the art of biometric user identification systems (Mack, column 3, line 631).

While the combination between Usui and Mack discloses the invention above, the combination does not teach

(3) a mobile hand held terminal for recognizing a user's identity during an attempt to access the mobile terminal;

(4) processing means for comparing the generated model with the stored user profile information to determine whether the user is authorized to access a system, said processing means comprising means for granting access to the system when the generated model matches the profile information of one of the authorized users stored in the memory means, thereby indicating recognition and authorization of the user; and

(5) means for updating the profile information of the one of the authorized users with the generated model after each grant of access by said means for granting access such that the updated profile information comprises an average of the generated model and the previously stored profile information.

Teitelbaum discloses a telephone with biometric sensing device ("This invention relates generally to telephones and more particularly to a telephone provided with a contact imaging device for identifying an operator of the telephone.", column 1, line 6) comprising:

(1) a mobile hand held terminal for recognizing a user's identity during an attempt to access the mobile terminal ("the contact imaging device allows for a user of the telephone to be identified", column 4, line 14);

(2) processing means for comparing the generated model with the stored user profile information to determine whether the user is authorized to access a system ("The comparator means analyzes the biometric data for identifiable features and compares predetermined features against those of biometric templates stored in non-volatile memory.", Teitelbaum, column 11, line 35), said processing means comprising means for granting access to the system when the generated model matches the profile information of one of the authorized users stored in the memory means, thereby indicating recognition and authorization of the user ("Once identified, the salesman is provided access to telephone features and services in a predetermined manner.", Teitelbaum, column 8, line 50).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the three dimensional modeling and biometric (i.e., facial) biometric system of the Usui and Mack combination described above, into the mobile hand held terminal of Teitelbaum to determine whether the user is authorized to

access a system, in order to provide Teitelbaum with a contact free method of capturing a biometric (i.e., a face instead of a fingerprint) for the convenience of the user, and to ensure accuracy of recognition ("recognizing rate is further improved" at Usui, abstract).

While the combination between Usui, Mack, and Teitelbaum disclose the invention above, the combination does not teach a means for updating the profile information of the one of the authorized users with the generated model after each grant of access by said means for granting access such that the updated profile information comprises an average of the generated model and the previously stored profile information.

Picone discloses a voice log-in using spoken name input ("This invention is a voice log-in technique in which access to, for example, a medical records database, is granted based on the computerized recognition of a person's spoken name.", column 2, line 24) that teaches a means for updating the profile information of the one of the authorized users with the generated model after each grant of access by said means for granting access such that the updated profile information comprises an average of the generated model and the previously stored profile information ("For each successful verification, the dynamic reference updating procedure averages the feature sets associated with the reference template and the input speech, and the reference template is updated accordingly," Picone, column 2, line 1)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add a means for updating the profile information of the one of the

authorized users with the generated model after each grant of access by said means for granting access such that the updated profile information comprises an average of the generated model and the previously stored profile information as taught by Picone to the combination of Usui, Mack, and Teitelbaum in order to accommodate gradual changes in appearance and maintain recognition over a long time period ("thereby accommodating changes.", Picone, column 2, line 5).

Regarding claim 2, Mack further comprises a light source for projecting light at the user's face (Mack, Figure 4, numeral 41).

Regarding claim 3, Mack further teaches a light source wherein the light source projects structured light onto the user's face to facilitate the generation of the 3-dimensional model (Mack, Figure 4, numeral 42).

Regarding claim 5, Usui further teaches said memory means comprising at least one selected from a group consisting of RAM, ROM, EPROM, and a magnetic storage media, which would be an inherent feature of the database used to store existing user profiles depicted in Usui's drawings (Usui, Figure 1, numeral 17).

Regarding claim 6, Usui teaches a processing means comprising a computer, said memory means being contained within said computer (Usui, Figure 2, numeral 114).

Regarding claim 7, while the combination between Usui, Mack, Teitelbaum, and Picone as applied to claim 1 does teach at least one camera adapted to obtain a 2-dimensional still image of the user's face and a 3-dimensional model to determine whether the user is authorized to access the system, the combination does not teach wherein the obtained 2-dimensional still image of the user's face is used to determine the user's facial texture, the determined facial texture being used in conjunction with the generated 3-dimensional model to determine whether the user is authorized to access the system.

Mack teaches the obtained 2-dimensional still image of the user's face being used to determine the user's facial texture (column 3, line 631).

It would have been obvious to one of ordinary skill in the art to further modify the 3-dimensional face recognition apparatus taught by the combination between Usui, Mack, Teitelbaum, and Picone to include textural face data as taught by Mack, in conjunction with the generated 3-dimensional model, to determine whether the user is authorized to access the system, because textural face data provides additional information for comparison for the recognition system "such as physical surface properties of an object" (Mack, column 3, line 631).

Regarding claim 8, while the combination between Usui, Mack, Teitelbaum, and Picone teaches the invention of claim 1, the combination does not teach wherein said light source comprises at least one selected from a group consisting of white light, Laser light and infrared light.

Mack discloses a method and apparatus for capturing stereoscopic images using image sensors (“The present invention relates generally to three-dimensional (3-D) models and, in particular, to a method and apparatus for capturing stereoscopic images to be processed into 3-D models of objects.”, column 1, line 8) that teaches wherein said light source comprises at least one selected from a group consisting of white light,

Laser light and infrared light (“Alternatively, the vertical lines 21 may be projected onto the object 20 using light source 16 such as infra-red laser or visible laser.”, Mack, column 15, line 65).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the infrared light as the light source as taught by Mack in the invention created by the combination of Usui, Mack, Teitelbaum, and Picone infrared light is not visible and therefore more transparent and passive for the comfort of the user (“generating non-visible light output (e.g. infra-red)” (Mack, column 5, line 57).

Regarding claim 9, the combination between Usui, Mack, Teitelbaum, and Picone, which teaches the invention of claim 1 discussed above, also teaches wherein the mobile terminal is a mobile telephone (Teitelbaum, Figure 12).

Regarding claim 11, Mack of the combination between Usui, Mack, Teitelbaum and Picone, which teaches the invention of claim 1, further comprises means for determining an orientation of the mobile terminal for determining an angle between said at least first and second angle of view (Mack, Figure 6)

Regarding claim 12, Mack of the combination between Usui, Mack, Teitelbaum, and Picone, which teaches the invention of claim 1, discloses wherein said at least one camera comprises first and second cameras, said first camera adapted to record at least one still image of the user from at least the first angle of view and said second camera adapted to record at least one still image of the user from at least the second angle of view (Mack, Figure 12)

Regarding claims 21, the invention of claim 21 are obvious in view of Usui, Mack, Teitelbaum, Picone and Sadovnik for the same reasons and motivation as applied to claim 1 above.

5. **Claims 19, 4, 13, 14,** and **15** are rejected under 35 U.S.C. 103(a) as being unpatentable over Usui et. al (JP404242106A – a translation is on order and will be provided with the mailing of the next office action), Mack et al. (US patent 6,377,700) , Teitelbaum (US 5,872,834), Picone et. al. (US 5,293,452) and Sadovnik (US 5,497,430).

Regarding claims 19 and 4, Usui does not teach at least one camera comprising a charged couple device (CCD) camera, which is a digital camera.

Sadovnik discloses at least one camera comprising a charged couple device camera, which is a digital camera, in the analogous area of biometric recognition systems ("At the same time, one would like to use existing inexpensive CCD video cameras", Sadovnik, column 13, line 46).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a CCD video camera, which is a digital camera, because they are relatively inexpensive ("At the same time, one would like to use existing inexpensive CCD video cameras", Sadovnik, column 13, line 46).

Regarding claims 13 and 20, the invention of claim 13 and 20 are obvious in view of Usui, Mack, Teitelbaum, Picone and Sadovnik for the same reasons and motivation as applied to claims 1, 3 and 7 above.

Regarding claim 14, Mack of the Usui, Mack, Teitelbaum, Picone, and Sadovnik combination discussed in claim 13 further comprises a light source for projecting structured light on the user's face for use in obtaining said at least two still images of the user's face (Mack, Figure 6, numeral 30 and 32).

Regarding claim 15, Teitelbaum of the Usui, Mack, Teitelbaum, Picone, and Sadovnik combination discussed in claim 13, teaches wherein said mobile terminal is a mobile telephone (Teitelbaum, Figure 12).

at least one camera directed toward a user's face and to obtain at least one still image of the user's face (Usui, Figure 2, numeral 112);

memory means for storing user profile information relating to authorized users of a system (Usui, Figure 1, numeral 17);

processor connected to said at least one camera, configured to process the still images obtained by said at least one camera (Figure 1, numeral 13) and to generate a 3-dimensional model of the user's face (Usui, Figure 2, numeral 15, see Figures 3, 5-7), and

processing means for comparing the generated model with the stored user profile information to determine the user (Figure 1, numeral 16).

Usui does not teach (italicized):

(1) at least one camera configured to record *at least two still images of* a *user from at least first and second angles of view in addition to the at least one additional still image*;

(2) *to generate a facial texture bit map of the user's face using the at least one additional still image of the user's face, and to compare the facial texture bit map with*

the stored user profile information to determine whether the user is authorized to access the system.

(3) *a mobile hand held terminal* for recognizing a user's identity during an attempt to access the mobile terminal;

(4) processing means for comparing the generated model with the stored user profile information to determine whether the user is *authorized to access a system, said processing means comprising means for granting access to the system when the generated 3-dimensional model matches the profile information of one of the authorized users stored in the memory means, thereby indicating recognition and authorization of the user*; and

(5) means for *updating the profile information* of the one of the authorized users with the generated model after each grant of access by said means for granting access such that the updated profile information comprises an average of the generated model and the previously stored profile information.

Mack discloses a method and apparatus for capturing stereoscopic images using image sensors ("The present invention relates generally to three-dimensional (3-D) models and, in particular, to a method and apparatus for capturing stereoscopic images to be processed into 3-D models of objects.", column 1, line 8)

wherein at least one camera is directed toward the user's face and adapted to record at least two still images of the user from at least first and second angles of view (Mack, Figure 2, numeral 22 and 23) and to obtain at least one additional still image (Mack, "Block 44 illustrates simultaneously or as close to simultaneously as possible, an image is captured by one of the left imaging device 12 and right imaging device 13 to obtain the textural data. Although multiple images may be taken by the left 12 and right imaging devices 13 to obtain textural data, generally, a single image from one imaging device may be sufficient. The reason for the simultaneousness is to match as closely as possible the stereoscopic image with the structural light data to the image with textural data.",column 4, line 67 to column 5, line 10; Mack, "The 3-D imaging device system 20 further comprises a color imaging device 24 that captures the textural data of the target object. When textural data is to be obtained, the light source 16 is prevented from emitting structured light if the light is in the visible spectrum.", column 6, lines 17-21).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize, as the image 3D image capture system of Usui, the plural camera system of Mack whereby at least two still images of the user's face are recorded from first and second angles, in order to provide a well known, robust and reliable way with which to capture three dimensional points for modeling an object ("In creating three-dimensional (3-D) models of real objects, a multitude of images of real objects are taken from different positions to exploit the differences in

the objects' projection." Mack, column 2, line 40) and without specialized equipment and operating expertise ("by using a 3-D imaging device system that can capture images of objects which are subsequently used to create 3-D data would allow consumers without special expertise to generate 3-D models of real objects expeditiously and with ease" as stated by Mack in column 1, line 52).

Mack also teaches the obtained 2-dimensional one additional still image of the user's face being used to determine the user's facial texture (Mack, column 4, line 67 to column 5, line 10; Mack, column 6, lines 17-21; Mack, column 3, line 63-column 4, line 1; Mack, column 4, lines 67-column 5, line 15).

It would have been obvious to one of ordinary skill in the art to further modify the 3-dimensional face recognition apparatus taught by the 3D image capture system of Usui to include textural face data as taught by Mack, in conjunction with the generated 3-dimensional model, to determine whether the user is authorized to access the system, because textural face data provides additional information for comparison for the recognition system "such as physical surface properties of an object" and the use of additional biometric features to authenticate a user is well known in the art of biometric user identification systems (Mack, column 3, line 631).

While the combination between Usui and Mack discloses the invention above, the combination does not teach

(3) a mobile hand held terminal for recognizing a user's identity during an attempt to access the mobile terminal;

(4) processing means for comparing the generated model with the stored user profile information to determine whether the user is authorized to access a system, said processing means comprising means for granting access to the system when the generated model matches the profile information of one of the authorized users stored in the memory means, thereby indicating recognition and authorization of the user; and

(5) means for updating the profile information of the one of the authorized users with the generated model after each grant of access by said means for granting access such that the updated profile information comprises an average of the generated model and the previously stored profile information.

Teitelbaum discloses a telephone with biometric sensing device ("This invention relates generally to telephones and more particularly to a telephone provided with a contact imaging device for identifying an operator of the telephone.", column 1, line 6) comprising:

(1) a mobile hand held terminal for recognizing a user's identity during an attempt to access the mobile terminal ("the contact imaging device allows for a user of the telephone to be identified", column 4, line 14);

(2) processing means for comparing the generated model with the stored user profile information to determine whether the user is authorized to access a system ("The

comparator means analyzes the biometric data for identifiable features and compares predetermined features against those of biometric templates stored in non-volatile memory.", Teitelbaum, column 11, line 35), said processing means comprising means for granting access to the system when the generated model matches the profile information of one of the authorized users stored in the memory means, thereby indicating recognition and authorization of the user ("Once identified, the salesman is provided access to telephone features and services in a predetermined manner.", Teitelbaum, column 8, line 50).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the three dimensional modeling and biometric (i.e., facial) biometric system of the Usui and Mack combination described above, into the mobile hand held terminal of Teitelbaum to determine whether the user is authorized to access a system, in order to provide Teitelbaum with a contact free method of capturing a biometric (i.e., a face instead of a fingerprint) for the convenience of the user, and to ensure accuracy of recognition ("recognizing rate is further improved" at Usui, abstract).

While the combination between Usui, Mack, and Teitelbaum disclose the invention above, the combination does not teach a means for updating the profile information of the one of the authorized users with the generated model after each grant of access by said means for granting access such that the updated profile information comprises an average of the generated model and the previously stored profile information.

Picone discloses a voice log-in using spoken name input ("This invention is a voice log-in technique in which access to, for example, a medical records database, is granted based on the computerized recognition of a person's spoken name.", column 2, line 24) that teaches a means for updating the profile information of the one of the authorized users with the generated model after each grant of access by said means for granting access such that the updated profile information comprises an average of the generated model and the previously stored profile information ("For each successful verification, the dynamic reference updating procedure averages the feature sets associated with the reference template and the input speech, and the reference template is updated accordingly," Picone, column 2, line 1)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add a means for updating the profile information of the one of the authorized users with the generated model after each grant of access by said means for granting access such that the updated profile information comprises an average of the generated model and the previously stored profile information as taught by Picone to the combination of Usui, Mack, and Teitelbaum in order to accommodate gradual changes in appearance and maintain recognition over a long time period ("thereby accommodating changes.", Picone, column 2, line 5).

Allowable Subject Matter

7. Claims 17, 18, 22-24 are allowed. Regarding claims 17 and 18, the prior art of record does not reasonably teach or suggest the steps of sending, from a mobile terminal, 2D still images over a network to sever, generating a 3D model at the server, determining facial shape using the 3D model, sending the shape and model back to the mobile terminal, and determining whether the shape data matches a profile stored in memory. Dependent claims 25 and 26, which depend from allowed claim 17, are similarly allowed.

8. Claims 10 and 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Regarding claims 10 and 16, the prior art does not teach the invention of claim 1, where the mobile terminal transmits the images to a server over a network and receives a 3-dimensional model and a facial texture bit map from the server.

Response to Arguments

Applicant's Argument:

"It has already been established that Usui, Teitelbaum and Picone fail to disclose generating a user's "facial texture bit map", as recited in the claims (see pages 9-14 of

the Office Action dated October 29, 2008). The Office Action again relied on Mack as allegedly curing this deficiency of Usui, Teitelbaum and Picone with respect to claims 1, 13, 20 and 21. Applicant submits that Mack does not disclose the deficiencies of Usui, Teitelbaum and Picone with respect to the currently pending claims. Mack is directed to capturing stereoscopic images. Mack further discloses creating three-dimensional (3-D) models of real objects, where a multitude of images of real objects are taken from different positions to exploit the differences of the object's projections (see column 2, lines 40-47 of Mack). The two or more images (stereoscopic images) are processed into 3-D models." (Applicant's Remarks, last paragraph of page 16 to second paragraph of page 17).

Examiner's Reply:

Applicant's argument regarding claims 1, 3, 20 and 21 that "A "facial texture bit map" is not taught by any of the above references . As stated in the last Office Action, it is important to note that a facial texture bitmap is simply an image of a face as a bitmap is an image and texture is defined as the spatial variation in pixel intensities, which would be present in any image of a face, therefore an image of a face is a "facial texture bitmap". In order words, any facial image is a "facial textural bit map." In order words, this term is wide open to interpretation although Examiner has not relied on the broadest possible interpretation of this term in using Mack. Mack teaches capturing images specifically to obtain textural data with the color imaging device 24 as opposed

to the images captured for three-dimensional modeling by the 3-D imaging device system 20 as discussed in the Office Action above and located at column 4, line 67 to column 5, line 10 and at column 6, lines 17-21 of the Mack reference. These are quoted below for Applicant's convenience:

In column 4, line 67 to column 5, line 10, the Mack reference states:

> "Block 44 illustrates simultaneously or as close to simultaneously as possible, an image is captured by one of the left imaging device 12 and right imaging device 13 to obtain the textural data. Although multiple images may be taken by the left 12 and right imaging devices 13 to obtain textural data, generally, a single image from one imaging device may be sufficient. The reason for the simultaneousness is to match as closely as possible the stereoscopic image with the structural light data to the image with textural data."

In column 6, lines 17-21, the Mack reference states:

"The 3-D imaging device system 20 further comprises a color imaging device 24 that captures the textural data of the target object. When textural data is to be obtained, the light source 16 is prevented from emitting structured light if the light is in the visible spectrum."

In addition, Applicant is directed to the following figures and passages which were quoted in the previous Office Action regarding separate images being captured for the textural data by the color imaging system besides the images obtained by the 3-D imaging device system:

In FIG. 4, Applicant is directed to num. 44, which states “Capture Image of Target Object for Textural Data."

In column 3, lines 59 to column 4, line 1, the Mack reference states:

“ Textural data may be applied to the triangulated structure by using, for example, True Space, a software commercially available from Caligary, Mountain View, Calif. Generally, textural data comprises material information such as physical surface properties of an object and may also comprise color information of the object.”

Applicant’s Argument:

“It has already been established that Usui, Teitelbaum and Picone fail to disclose generating a user's "facial texture bit map", as recited in the claims. The Office Action again relied on Mack as allegedly curing this deficiency of Usui, Teitelbaum and Picone with respect to claims 1, 13, 20 and 21. Applicant submits that the Office Action's interpretation of Mack is incorrect. Mack is directed to capturing stereoscopic images. Mack further describes creating three-dimensional (3-D) models of real objects, where a multitude of images of real objects are taken from different positions to exploit the

differences of the object's projections. See col. 2 lines 40-47 of Mack. The two or more images (stereoscopic images) are processed into 3-D models."

Examiner's Reply:

While Mack discloses creating 3-D models using captured images, Mack is not limited to this as shown in the following passage on column 4, line 67 to page 5, line 15, quoted below for Applicant's convenience:

In column 4, line 67 to column 5, line 15, the Mack reference states:

"Block 44 illustrates simultaneously or as close to simultaneously as possible, an image is captured by one of the left imaging device 12 and right imaging device 13 to obtain the textural data. Although multiple images may be taken by the left 12 and right imaging devices 13 to obtain textural data, generally, a single image from one imaging device may be sufficient. The reason for the simultaneousness is to match as closely as possible the stereoscopic image with the structural light data to the image with textural data. It should, however, be noted that where the 3-D imaging device system 10 and the target object are relatively stationary, simultaneousness is no longer important."

Applicant's Argument:

The teachings of Mack are limited to using 2-D images to obtain 3-D models.
Claim 1 clearly recites more than simply creating a 3-D model using images, as claim 1 recites, in part, "a processor to generate a 3-dimensional model of the user's face and

to generate a facial texture bit map of the user's face using the at least one still image of the user's face", as recited, in part, in claims I, 13, 20 and 21 (emphasis added). At best, Mack discloses generating a 3-D model but does not disclose generating a facial texture bit map of a face.

Examiner's Reply:

As stated in column 6, lines 20-25 of the Mack reference "The 3-D imaging device system 20 further comprises a color imaging device 24 that captures the textural data of the target object." The monochrome cameras 22 and 23 capture a stereoscopic image of the target object.

Applicant's Argument:

"In addition, claims 17-18 have been allowed and independent claims 22-24 are respective apparatus, means-plus-function and computer program claim variations of independent claim 17 and should be allowed for the same reasons. By virtue of dependency, claims 2-12, 14-16 and 18-19 should also be allowed. Withdrawal of the rejections of those claims and an allowance of claims 1-26 is respectfully requested."

Examiner's Reply:

Since claims 22-24 are respective apparatus, means-plus-function and computer program claim variations of independent claim 17 and independent claim 17 was allowed in the First Office Action, claims 22-24 are similarly allowed for the same

reasons as claim 17. See the section on Allowed Subject Matter below for the reasons for Allowance.

Applicant's Argument:

"Sadovnik is directed to operating an image recognition system including providing a neural network including a plurality of input neurons. However, Applicant submits that Sadovnik fails to cure the deficiencies discussed above regarding claim 1."

Examiner's Reply:

Sadovnik is not relied upon to teach the "facial texture bitmap," However, it discusses the use of "high resolution facial images" in automated face recognition system, the high resolution facial images being "facial texture bitmaps" (column 2, lines 35-37).

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ELISA M. RICE whose telephone number is (571)270-1582. The examiner can normally be reached on 12:00-8:30p.m. EST Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Werner, can be reached on (571)272-7401. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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